BIFURCATIONS OF PERIODIC SOLUTIONS IN
FORCED ORDINARY DIFFERENTIAL INCLUSIONS

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Abstract. We are interested in periodic solutions of a coupled system of two periodically forced ordinary differential inclusions when the first differential inclusion is weakly nonlinear with respect to a small parameter while the second differential inclusion is strongly nonlinear. We investigate two cases when the second equation of the unperturbed autonomous system has either a single or a non-degenerate family of periodic solutions parameterized by the first variable. The second case usually occurs when the second unperturbed differential equation is symmetric. A combination of the topological degree approach with the averaging method is applied to find topological degree conditions for bifurcations of forced periodic solutions of the perturbed system of differential inclusions for the small parameter from the above-mentioned periodic solutions of the unperturbed equation. Concrete examples of discontinuous periodically forced differential equations are also treated to illustrate the theory.

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